Amendments to the Claims

Listing of the Claims

This listing of claims will replace all prior versions, and listings, of claims in the application:

1. (Currently Amended) A linear block copolymer, comprising the structure c2)-b)-c1)-a), wherein:

the a) is a hydrophobic biodegradable polymer a), the hydrophobic polymer a) being selected from one or more of polylactide, polyglycolide, poly(lactide-co-glycolide), poly-β-hydroxybutyrate and poly-β-hydroxyvalerate;

the b) is a hydrophilic polymer b) comprising polyethylene glycol;

the c1 is a first functional end group c1) bound directly to the hydrophobic polymer a); and

the c2 is a second functional end group c2) ~~for~~ not bound but capable of covalently binding ~~of~~ a surface-modifying substance d) to the hydrophilic polymer b) ~~either directly or~~ by way of an at least bifunctional molecule, wherein said second functional end group c2) is neither a hydroxyl group nor a carboxylic acid and wherein the at least bifunctional molecule has at least one free functional end group that is different from the second functional end group c2) and that is capable of covalently binding with the surface-modifying substance d).

2. (Currently Amended) The block copolymer of Claim 1, wherein:

the first functional end group c1) is an end hydroxyl group; and

the second functional end group c2) is a primary amino group.

3. (Currently Amended) The block copolymer of Claim 2, wherein the hydrophilic polymer b) is poly(ethylene glycol) amine (PEG-NH2).

4. Cancelled.

5. (Previously Presented) The block copolymer of Claim 1, wherein the hydrophilic polymer b) is at least one polymer selected from the group consisting of polyethylene glycol, polypropylene glycol, polyethylene glycol/polypropylene glycol copolymer, polyethylene glycol/polypropylene glycol/polyethylene glycol copolymer, polybutylene glycol, polyacrylamide, polyvinyl alcohol, polysaccharide, peptide and protein.

6-8. Cancelled.

9. (Previously Presented) The block copolymer of Claim 1, wherein the polyethylene glycol has a molar mass in a range of 200 to 10,000 Da.

10. (Previously Presented) The block copolymer of claim 1, wherein the hydrophobic polymer a) is polylactide with a molar mass in a range of 1,000 to 100,000 Da.

11. (Previously Presented) The block copolymer of claim 1, wherein the surface of the block copolymer is characterized by bound surface-modifying substances d).

12. (Withdrawn) The block copolymer of Claim 1, wherein the block copolymer additionally contains at least one surface-modifying substance d), wherein substance d) is bonded to the hydrophilic polymer b) by means of the reactive group c).

13. (Withdrawn) The block copolymer of Claim 12, wherein the substance d) is at least one substance selected from a carbohydrate, peptide, protein, heteroglycan, proteo-glycan, glycoprotein, amino acid, fat, phospholipid, glycolipid, lipoprotein, medicinal agent, antibody, enzyme, DNA/RNA, a cell, dye and molecular sensor.

14. (Previously Presented) A shaped body formed from the block copolymer of Claim 1.

15. (Previously Presented) The shaped body of Claim 14, wherein the shaped body is a film, particle, three-dimensional body, porous body or a sponge.

16. (Withdrawn) The use of a block copolymer according to Claim 1 for the production of drug-targeting systems, drug-delivery systems, bioreactors, for therapeutic and diagnostic purposes, for tissue engineering and as emulsifier.

17. (Withdrawn) The process for the production of a block copolymer of Claim 12, wherein the at least one substance d) is converted with a block copolymer according to Claim 1, wherein the block copolymer is present in solution or in the solid phase.

18. (Withdrawn) The process according to Claim 17, wherein for binding the at least one substance d), the block copolymer according to Claim 1 is used in the form of a porous shaped body.

19. (Withdrawn) The process for the production of a block copolymer according to Claim 12, wherein in a first stage, the substance d) is provided with a reactive group c) and in a second stage, the complex composed of substance d) and reactive group c) is bonded by means

of the reactive group c) to the hydrophilic polymer b) of a block copolymer composed of a hydrophobic polymer a) and a hydrophilic polymer b).

20. (Withdrawn) The process for the production of a block copolymer according to Claim 12, wherein the binding of the at least one substance d) to the surface of the block co-polymer is achieved by generating a substrate pattern, and the reactive group c) is selected from 1) an at least bifunctional molecule with at least one free functional group and/or 2) a functional group.

21. (Withdrawn) The process according to Claim 20, wherein the substance d) is applied with a locally constant or variable concentration by means of the reactive group c) on the surface of a block copolymer containing a hydrophobic component a) and hydrophilic component b).

22. (Withdrawn) The process according to Claim 20, wherein for binding the reactive group c) and/or the substance d) in a substrate pattern, the surface of the block copolymer is structured by a plotter, an ink jet printer, radiation with light, bombardment with particles, stamping or soft lithography.

23. (Withdrawn) The process for the production of a block copolymer according to Claim 13, wherein in a first stage, the substance d) is provided with a reactive group c) and in a second stage, the complex composed of substance d) and reactive group c) is bonded by means of the reactive group c) to the hydrophilic polymer b) of a block copolymer composed of a hydrophobic polymer a) and a hydrophilic polymer b).

24. (Withdrawn) The process for the production of a block copolymer according to Claim 17, wherein in a first stage, the substance d) is provided with a reactive group c) and in a second stage, the complex composed of substance d) and reactive group c) is bonded by means of the reactive group c) to the hydrophilic polymer b) of a block copolymer composed of a hydrophobic polymer a) and a hydrophilic polymer b).

25. (Withdrawn) The process for the production of a block copolymer according to Claim 18, wherein in a first stage, the substance d) is provided with a reactive group c) and in a second stage, the complex composed of substance d) and reactive group c) is bonded by means of the reactive group c) to the hydrophilic polymer b) of a block copolymer composed of a hydrophobic polymer a) and a hydrophilic polymer b).

26. (Withdrawn) The process for the production of a block copolymer according to Claim 13, wherein the binding of the at least one substance d) to the surface of the block co-polymer is achieved by generating a substrate pattern, and the reactive group c) is selected from 1) an at least bifunctional molecule with at least one free functional group and/or 2) a functional group.

27. (Withdrawn) The process for the production of a block copolymer according to Claim 17, wherein the binding of the at least one substance d) to the surface of the block co-polymer is achieved by generating a substrate pattern, and the reactive group c) is selected from 1) an at least bifunctional molecule with at least one free functional group and/or 2) a functional group.

28. (Withdrawn) The process for the production of a block copolymer according to Claim 18, wherein the binding of the at least one substance d) to the surface of the block

co-polymer is achieved by generating a substrate pattern, and the reactive group c) is selected from 1) an at least bifunctional molecule with at least one free functional group and/or 2) a functional group.

29. (Withdrawn) The process according to Claim 26, wherein the substance d) is applied with a locally constant or variable concentration by means of the reactive group c) on the surface of a block copolymer containing a hydrophobic component a) and hydrophilic component b).

30. (Withdrawn) The process according to Claim 27, wherein the substance d) is applied with a locally constant or variable concentration by means of the reactive group c) on the surface of a block copolymer containing a hydrophobic component a) and hydrophilic component b).

31. (Withdrawn) The process according to Claim 28, wherein the substance d) is applied with a locally constant or variable concentration by means of the reactive group c) on the surface of a block copolymer containing a hydrophobic component a) and hydrophilic component b).

32. (Withdrawn) The process according to Claim 21 wherein for binding the reactive group c) and/or the substance d) in a substrate pattern, the surface of the block copolymer is structured by a plotter, an ink jet printer, radiation with light, bombardment with particles, stamping or soft lithography.

33. (Previously Presented) The block copolymer of Claim 1, wherein the hydrophobic polymer a) is polylactide with a molar mass greater than 1,000 Da.

34. (Cancelled) ~~The block copolymer of Claim 1, wherein the hydrophobic polymer a) and/or hydrophilic polymer b) are selected from the group consisting of a linear polymer, a branched polymer, and combinations thereof.~~

35. (Cancelled) ~~The block copolymer of claim 1, wherein the hydrophobic polymer a) is at least one polymer selected from the group consisting of polyester, poly-ε-caprolactam, poly-α-hydroxyester, poly-β-hydroxyester, polyamide, polyphosphazene, polyanhydride, polydioxanon, polymalic acid, polytartaric acid, polyorthoester, polycarbonate, peptide, polysaccharide and protein.~~

36. (Previously Presented) The block copolymer of Claim 1, wherein the second functional end group is for binding of a surface-modifying substance d) to the hydrophilic polymer b) either directly or by way of an at least bifunctional molecule with at least one free functional end group.

37. (Previously Presented) The block copolymer of Claim 1, wherein the second functional end group is for binding of a surface-modifying substance d) to the hydrophilic polymer b) either directly or by way of an at least bifunctional molecule, the at least bifunctional molecule having at least one free functional end group that is bound or suitable for being bound with the surface-modifying substance d).

38. (Previously Presented) The block copolymer of Claim 1, wherein the second functional end group is for covalent binding of a surface-modifying substance d) directly to the hydrophilic polymer b).

39. (Cancelled) ~~The block copolymer of Claim 1, wherein the second functional end group is for covalent binding of a surface-modifying substance d) to the hydrophilic polymer b) by way of an at least bifunctional molecule, the at least bifunctional molecule having at least one free functional end group that is bound or suitable for being bound with the surface-modifying substance d).~~

40. (Cancelled) ~~The block copolymer of Claim 39, wherein the least one free functional end group is different from the second functional end group.~~

41. (Previously Presented) The block copolymer of Claim 1, wherein the second functional end group is for covalent binding of a surface-modifying substance d) to the hydrophilic polymer b) by way of an at least bifunctional molecule, the at least bifunctional molecule having at least one free functional end group that is not bound but suitable for being bound with the surface-modifying substance d).

42. (Previously Presented) The block copolymer of Claim 41, wherein the least one free functional end group is different from the second functional end group.

43. (Previously Presented) The block copolymer of Claim 1, wherein the second functional end group is for binding of a surface-modifying substance d) to the hydrophilic polymer b) by way of an at least bifunctional molecule, the at least bifunctional molecule having at least one free functional end group that is covalently bound to the surface-modifying substance d).

44. (Previously Presented) The block copolymer of Claim 43, wherein the least one free functional end group is different from the second functional end group.

45-59. Cancelled.

60. (New) A substantially non-immunogenic, surface-modified linear block copolymer, comprising the structure c2)-b)-c1)-a) , wherein:

the a) is a hydrophobic biodegradable polymer a), the hydrophobic polymer a) being selected from one or more of polylactide, polyglycolide, poly(lactide-co-glycolide), poly-β-hydroxybutyrate and poly-β-hydroxyvalerate;

the b) is a hydrophilic polymer b) comprising polyethylene glycol;

the c1 is a first functional end group c1) bound directly to the hydrophobic polymer a); and

the c2 is a second functional end group c2) covalently binding ~~of~~ a surface-modifying substance d) to the hydrophilic polymer b) by way of an at least bifunctional molecule, the second functional end group c2) being neither a hydroxyl group nor a carboxylic acid, and the at least bifunctional molecule having at least one functional end group that is different from the second functional end group c2) and that is covalently bound with the surface-modifying substance d).

61. (New) The block copolymer of Claim 60, wherein the ~~first~~ functional end group c1) is an end hydroxyl group ~~and the second functional end group is a primary amino group~~.

62. (New) The block copolymer of Claim 61, wherein the hydrophilic polymer b) is poly(ethylene glycol) amine (PEG-NH-d[[2]]).

63. (New) A block copolymer, comprising:

a hydrophilic biodegradable polymer a) comprising one or more compound selected from the group consisting of polylactide, polyglycolide, poly(lactide-co-glycolide), poly-β-hydroxybutyrate and poly-β-hydroxyvalerate, wherein each a) comprises at least two first functional end groups c1),

wherein each end group c1) participates in a covalently bond with a proximal end of a hydrophilic polymer b), comprising polyethylene glycol, and

wherein at a distal end of each b) is a c2), which comprises a second functional end group c2) capable of covalently binding a surface-modifying substance d) to the hydrophilic polymer b), wherein said second functional end group c2) is neither a hydroxyl group nor a carboxylic acid.

64. (New) The block copolymer of claim 63, wherein the proximal ends and the distal ends are the same.

65. (New) A population of molecules in aqueous medium comprising the structure a)-c1)-b)-c2), wherein:

a) is a surface comprising a hydrophobic biodegradable polymer, the hydrophobic polymer a) being selected from one or more of polylactide, polyglycolide, poly(lactide-co-glycolide), poly-β-hydroxybutyrate and poly-β-hydroxyvalerate;

b) is a hydrophilic polymer comprising polyethylene glycol;

c1) is a first functional end group of hydrophobic polymer a) which is covalently bound to hydrophilic polymer b); and

c2) comprises a second functional end group c2) capable of covalently binding a surface-modifying substance d) to the hydrophilic polymer b), wherein said second functional end group c2) is neither a hydroxyl group nor a carboxylic acid, and

wherein the orientation of each molecule in said population is such that hydrophilic component b) and second functional end group c2 project out from said surface, comprising said hydrophobic polymer a), thereby facilitating the binding of surface modifying substance d).

66. (New) The block copolymer of claim 63, wherein the surface is insoluble in the aqueous medium.